


VERIFICATION DECLARATION

I, SEIKI TAKITA residing at 30-5 Shakujii-dai 3-chome,  
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translator of the document filed as Application No.H11-177904 on  
June 24, 1999, the priority of which was declared on the same  
date, and that the following is a true translation to the best  
of my knowledge and behalf.

A handwritten signature in black ink, appearing to read 'Seiki Takita', with a long horizontal line extending to the right.

Seiki TAKITA

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[Name of Document] Specification 1  
[Name of Document] Abstract 1

[Title of Document] Specification

[Title of Invention] Dermatic cosmetic material

[Claims]

[Claim 1]

- 5           A dermatic cosmetic material containing a silicone paste composition as a substrate wherein the silicone paste composition is comprised of a cross-linked silicone polymer containing a hydrophilic polyoxyethylene group and a silicone oil.

[Claim 2]

- 10           A nonaqueous dermatic cosmetic material for perspiration control, wherein 50 to 500 parts by weight of an aluminum compound having a perspiration control activity is contained to 100 parts by weight of silicone paste composition as described in claim 1.

15           [Claim 3]

A transparent gel dermatic cosmetic material for perspiration control; wherein  
to (A) 100 parts by weight of silicone paste composition as described in claim 1,

- 20           (B) 100 to 1,000 parts by weight of an aluminum compound having a perspiration control activity,

(C) 100 to 2,000 parts by weight of lower alcohol, and

(D) 50 to 3,000 parts by weight of water

are contained.

25           [Claim 4]

A water-in-oil dermatic cosmetic material for perspiration control; wherein

to (A) 100 parts by weight of silicone paste composition as described in claim 1,

(B) 100 to 2,000 parts by weight of an aluminum compound having a perspiration control activity, and

(D) 50 to 5,000 parts by weight of water are contained.

5 [Claim 5]

A nonaqueous dermatic cosmetic material; wherein

to (A) 100 parts by weight of silicone paste composition as described in claim 1,

(C) 100 to 1,000 parts by weight of lower alcohol,

10 (E) 100 to 1,000 parts by weight of silicone oil having a viscosity of at most 100 mm<sup>2</sup>/s at 25°C, and

(F) 0.5 to 100 parts by weight of vitamin C are contained.

[Detailed Description of the Invention]

15 [0001]

[Field of the Invention]

The present invention relates to a dermatic cosmetic material wherein a paste composition comprised of a three-dimensionally cross-linked silicone polymer and a silicone  
20 oil are mixed. In particular, it relates to an antiperspirant composition for skin care characterized in that, when applied to the skin, it has neither tacky feel nor oily feel, spreads smoothly and provides a refreshing feeling to the skin, comprised of an aluminum compound having a perspiration control activity,  
25 and relates to a composition for skin-care wherein vitamin C is dispersed stably and homogeneously.

[0002]

[Background of the Invention]

Many antiperspirant cosmetics containing aluminum

compounds as an active component in perspiration control are available. The antiperspirant compositions are used in any form of nonaqueous or aqueous liquid, solid and spray compositions.

Nonaqueous liquid compositions are obtained by dispersing the foregoing active component into oily ingredients. Therefore, such compositions have an oily feel. In addition, it is required to shake them enough before their use because they cause sedimentation of the active component upon storage. Further, they have a drawback of tending to trickle down from the part to which they are applied. Then silicone oils are used as a dispersion medium for the active component with the intention of decreasing an oily feel. However, this measure cannot by itself get rid of the tendencies of the resultant compositions to deposit the active component upon storage and trickle down from the applied parts.

【0003】

In a case of mixing waxy ingredients, on the other hand, in a nonaqueous composition and forming the mixture into a stick-like solid composition, this composition has a tacky feel arising from the waxy ingredients. Such tacky feel is difficult to eliminate even when silicone oil is employed as oily ingredients. In another case of mixing a clay mineral such as montmorillonite as thickener in a nonaqueous composition and making the resultant mixture into the creamy or gel composition, the tacky feel caused by the thickener cannot be got rid of. For instance, the stick-like composition utilizing dibenzylidene sorbitol as a gelling agent and propylene glycol as a dispersion medium has a very tacky feel. Even if it is attempted to mix silicone oil as a texture improver in the foregoing composition, the silicone

oil cannot be dispersed homogeneously therein.

【0004】

On the other hand, aqueous liquid compositions are prepared by dispersing an active component into water or a water/alcohol mixture solution. As the active component can be dissolved homogeneously in the dispersion medium, the sedimentation thereof can be prevented from occurring upon storage. However, the compositions still tend to trickle down from the applied parts.

While the aqueous compositions can be converted into creamy or gel compositions by the use of a polyacrylic acid salt as a thickener, they are similar in drawback of having a tacky feel arising from the thickener to the foregoing nonaqueous compositions. So it has been attempted to convert the aqueous compositions into creamy compositions of oil-in-water or water-in-oil type by the use of emulsifiers. However, those compositions also have an irritant or tacky feel originating in the emulsifiers.

【0005】

In the case where it is intended that various vitamins be compounded in cosmetic materials for the purpose of furnishing nutrition to the skin, water-soluble vitamin C is difficult to disperse homogeneously into the cosmetic materials in a stabilized condition. This is because the water solution of vitamin C is liable to undergo oxidative decomposition, and so it is inferior in storage stability. Even when such cosmetic materials are prepared as emulsions of oil-in-water or water-in-oil type, their storage stability problem cannot be resolved. Therefore, cases are known where the cosmetic materials are prepared as nonaqueous compositions whose

dispersion medium is alcohol. When the silicone oil as texture improver is added to such compositions, however, it is difficult to obtain homogeneous dispersions.

【0006】

5   【Problems to be solved with this invention】

Therefore, the first object of the present invention is to provide the gel-like dermatic cosmetic materials, including particularly an antiperspirant composition of emulsifier-free emulsion type, which has no tacky feel arising from a thickener  
10 and create comfortable feelings when applied to the skin whether the compositions are aqueous or nonaqueous..

The second object of the present invention is to provide a nonaqueous dermatic cosmetic materials of homogeneous paste type, including a vitamin C-containing skin-care cosmetic  
15 material, which contains a lower alcohol and a silicone oil as a dispersion medium and has high storage stability.

【0007】

【Means to solve the problems】

As a result of our intensive studies for attaining the  
20 aforementioned objects, it has been found that the antiperspirant composition giving a comfortable feeling to the applied skin and the vitamin C-containing skin-care composition having high storage stability can be obtained by using a silicone paste composition comprised of a cross-linked silicone polymer which  
25 contains hydrophilic polyoxyalkylene groups and a silicone oil as a substrate, thereby achieving the present invention.

Namely, the present invention provides a dermatic cosmetic material containing a silicone paste composition comprised of a cross-linked silicone polymer having a hydrophilic

polyoxyalkylene group and a silicone oil as a substrate.

【0008】

Of the combinations of an organohydrogenpolysiloxane having polyoxyalkylene group represented by a general formula,

5  $R^1_a R^2_b H_c SiO_{(4-a-b-c)/2}$  (1), and/or an organohydrogenpolysiloxane represented by general formula,  $R^1_j H_k SiO_{(4-j-k)/2}$  (2), and a polyoxyalkylene represented by a general formula  $C_m H_{2m-1} O (C_2 H_4 O)_p (C_3 H_6 O)_q C_m H_{2m-1}$  (A) and/or an organopolysiloxane represented by a general formula  $R^1_d R^3_e SiO_{(4-d-e)/2}$  (B), the paste

10 silicone composition of the present invention is obtained by carrying out an addition polymerization using the components represented by the general formula (1) and /or general formula (A) as an essential component, then dispersing homogeneously the obtained cross-linked silicone polymer into silicone oil.

15 In those formulae,  $R^1$  represents a monovalent alkyl group containing 1 to 18 carbon atoms, an aryl group, an aralkyl group or a halogenated hydrocarbon group,  $R^2$  represents an organic group represented by  $-C_n H_{2n} O (C_2 H_4 O)_f (C_3 H_6 O)_g R^4$ ,  $R^3$  represents a monovalent 2-10C hydrocarbon group having a terminal vinyl group,  $R^4$

20 represents a hydrogen atom, a 1-10C saturated organic group, or a group represented by  $R^5-CO-$ ,  $R^5$  represents a 1-5C saturated organic group,  $1.0 \leq a \leq 2.5$ ,  $0.001 \leq b \leq 1.0$ ,  $0.001 \leq c \leq 1.0$ ,  $1.0 \leq d \leq 3.0$ ,  $0.001 \leq e \leq 1.5$ ,  $1.0 \leq j \leq 3.0$ ,  $0.001 \leq k \leq 1.5$ , f and p are each an integer of from 2 to 200, g and q are each an integer

25 of from 0 to 200, and m and n are each number of from 2 to 6. More specifically, of the silicone composition disclosed in Japanese Tokkai Hei 4-272932, or the combinations of organohydrogenpolysiloxane in aforementioned general formula (1) and/or general formula (2), and organopolysiloxane in general



formula (A) and/or organopolysiloxane in general formula (B),  
silicone paste composition of the present invention is obtained  
by having component represented by general formula (1) and/or  
general formula (A) as an essential component, addition  
5 polymerizing a low-viscosity silicone oil having a viscosity  
of less than  $100 \text{ mm}^2/\text{s}$  at  $25^\circ\text{C}$  and/or polyhydric alcohol and  
dispersing homogeneously a cross-linked silicone polymer into  
silicone oil, which is disclosed in Japanese Tokkai Hei  
5-140320. In accordance with the invention, the silicone paste  
10 composition as mentioned above is employed as a substrate  
(Component (A)) and combined with the following Components (B)  
to (F), thereby preparing a dermatic cosmetic material such as  
an antiperspirant composition or a skin-care composition.

【0009】

15 Anti-perspiration active aluminum compounds usable as  
Component (B) are aluminum chlorohydrate and aluminum zirconium  
chlorohydrate. Examples of available products of such aluminum  
compounds include Microdry UF, REACH101, REACH103, REACH301,  
REACH301 SOLUTION, REACH501, REACH501 SOLUTION, REHYDOL II, REACH  
20 AZP 902, REACH AZP 908, REACH AZP 855, REACH AZZ 902, REACH AZZ  
855, REACH AZN 885, REZAL 36P, REZAL 36 SOLUTION, REZAL 36GP,  
REZAL 36G SOLUTION, REZAL 67P and REZAL 67 SOLUTION (trade names,  
products of Reheis Chemical Company).

【0010】

25 Examples of lower alcohol usable as Component (C) include  
monohydric alcohols, such as ethanol and 2-propanol, and  
polyhydric alcohols, such as ethylene glycol, diethylene glycol,  
triethylene glycol, propylene glycol, dipropylene glycol,  
tripropylene glycol, isoproterenol and glycerine. Of these

alcohols, water-soluble alcohols, especially ethanol and dipropylene glycol, are preferred in the present invention.

【0011】

Silicone oils usable as Component (E) are those having  
5 a viscosity of no higher than  $100 \text{ mm}^2/\text{s}$  at  $25^\circ\text{C}$ , with examples including straight-chain or branched dimethylsilicone, methylphenylsilicone and fluorine-modified silicone. In the present invention, silicone oils having a viscosity of less than  $50 \text{ mm}^2/\text{s}$  are preferred. In particular, volatile dimethylsilicone  
10 oils having a boiling point of no higher than  $250^\circ\text{C}$  are preferred over the others.

【0012】

The present antiperspirant composition can be obtained by using as a substrate the silicone paste composition described  
15 above as Component (A), and incorporating an active component (Component (B)) into the substrate as a main agent. This antiperspirant composition is a non-aqueous composition, and realizes a creamy or gelled state. Since the thickener component in the substrate is the cross-linked silicone polymer as mentioned  
20 above, the resultant composition is free of a tacky feel and spreads smoothly.

The suitable proportion of Component (B) in the non-aqueous antiperspirant composition is 50~500 parts by weight, preferably 50 to 300 parts by weight, to 100 parts by weight of Component  
25 (A). When the Component (B) is contained in a proportion smaller than 50 parts by weight, the resultant composition has little antiperspirant effect; while, when the proportion thereof is increased beyond 500 parts by weight, the resultant composition gives a heavy feel to the users thereof.

## 【0013】

For preparing an antiperspirant composition having a transparent jelly-like appearance, it is preferable that Component (B) is 100~1,000 parts by weight, Component (C) is 5 100~2,000 parts by weight and Component (D) is 50~3,000 parts byweight, to 100 parts by weight of Component (A). When Component (B) is less than 100 parts by weight, the resultant composition has little antiperspirant effect; while, when it is more than 1,000 parts by weight, the resultant composition has a heavy 10 feel. Component (B) of 100~500 parts by weight is more preferable.

## 【0014】

When Component (C) is lower than 100 parts by weight, the resultant composition cannot have a transparent appearance; while, 15 when it is higher than 2,000 parts by weight, the resultant composition feels tacky. In particular, Component (C) of 100~1,000 parts by weight is preferable. When Component (D) is less than 50 parts by weight, the resultant composition is short of a refreshing impression; while, when it is more than 3,000 20 parts by weight, the resultant composition loses its transparency. Therefore, Component (D) of 100~2,000 parts by weight is preferable.

## 【0015】

For preparing an emulsified composition of water-in-oil 25 type, on the other hand, Component (B) of 100~2,000 parts by weight and Component (D) of 50~5,000 parts by weight, to 100 parts by weight of Component (A) are preferable. When Component (B) is less than 100 parts by weight, the resultant composition has little antiperspirant effect; while, when it is more than

2,000 parts by weight, the resultant composition feels heavy. In such a type of composition, therefore, in this case, Component (B) of 100~1,000 parts by weight is preferable as available amount.

【0016】

5           When Component (D), is less than 50 parts by weight, the resultant composition is short of a refreshing feeling; while, when it is more than 5,000 parts by weight, the emulsion obtained loses its stability. Therefore, Component (D) of 100~3,000 parts by weight is preferable as available amount.

10           In addition to those components, the ingredients which has so far been used in conventional antiperspirants, such as oils including silicone oil, ester oil and hydrocarbon oil, higher alcohols including cetyl alcohol and stearyl alcohol, and perfume, may further be mixed in the present composition.

15           【0017】

          In the case of preparing a skin-care composition containing vitamin C, Component (C) of 100~1,000 parts by weight, Component (E) of 100~1,000 parts by weight and vitamin C of 0.5~100 parts by weight to 100 parts by weight of Component (A) are preferable.

20           When Component (C) is less than 100 parts by weight, the resultant composition is short of compatibility with vitamin C; while, when it is more than 1,000 parts by weight, the resultant composition does not have comfortable feeling. Therefore, Component (C) of 100~500 parts by weight is preferable. When  
25           Component (E) is less than 100 parts by weight, the resultant composition does not have comfortable feeling; while, when it is more than 1,000 parts by weight, the resultant composition is not in a paste state. Therefore, Component (E) of 100~500 parts by weight is preferable.

**【0018】**

When vitamin C is less than 0.5 parts by weight, the resultant composition has little skin-care effect; while, when it is more than 100 parts by weight, it becomes difficult to prepare a  
5 homogeneous dispersion. Therefore, vitamin C of 0.5~50 parts by weight is particularly preferable.

In addition to the foregoing components, the ingredients usable for general skin-care cosmetics, such as oils including ester oil and hydrocarbon oil, higher alcohols including cetyl  
10 alcohol and stearyl alcohol, perfume and vitamins including vitamins A, B, D, E, F, K, L, T and U, may be mixed in the present skin-care composition.

**【0019】****【Effect of Invention】**

15 In accordance with the present invention, the antiperspirant composition obtained has neither tacky feel nor oily feel, but can spread smoothly and create a refreshing feeling in the users. The skin-care composition obtained has excellent storage stability and can give comfortable feelings to the users,  
20 therefore, the dermatic cosmetic materials according to the present invention have significant improvements over conventional ones.

**【0020】****【Examples】**

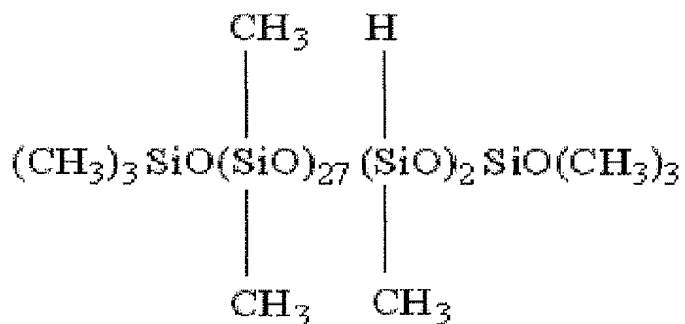
25 Now, the present invention will be illustrated in greater detail by reference to the following examples. However, the invention should not be construed as being limited to these examples. Additionally, the silicone paste composition used as a substrate is prepared using the silicone polymer synthesized

in the following Synthesis Example 1.

【0021】

SYNTHESIS EXAMPLE 1

In a reaction vessel were placed 100 g of  
5 organohydrogenpolysiloxane represented by the following average  
structural formula,



103.0 g of ethanol, 23.6 g of polyoxyalkylene represented by  
the following average structural formula,  
10  $\text{CH}_2=\text{CHCH}_2\text{O}(\text{C}_2\text{H}_4\text{O})_{10}\text{CH}_2\text{CH}=\text{CH}_2$  ,  
and 0.3 g of a 3 weight % ethanol solution of chloroplatinic  
acid, then stirred for 2 hours while keeping the temperature  
thereof at 70-80°C, and the solvent was removed under reduced  
pressure. Thus, a silicone polymer was obtained.

15 【0022】

A 100 parts by weight portion of the silicone polymer thus  
obtained was mixed with 300 parts by weight of  
dimethylpolysiloxane having the viscosity of 6 mm<sup>2</sup>/s at 25°C,  
and further kneaded by means of a three-rod roll mill to prepare  
20 a silicone paste composition (Silicone Composition No. 1).

Above mentioned 100 parts by weight portion of the silicone  
polymer was mixed with 400 parts by weight of  
decamethylcyclopentasiloxane, and further kneaded with a  
three-rod roll mill to prepare a silicone paste composition

(Silicone Composition No. 2).

**【0023】**

EXAMPLES 1 TO 3

Nonaqueous Antiperspirant Compositions:

- 5           Nonaqueous antiperspirant samples having the compositions shown in Table 1 were prepared.

**【Table 1】**

	Example 1	Example 2	Example 3
Silicone Composition 1	20.0%	20.0	0
KSG15 <sup>*1)</sup>	0	20.0	0
Silicone Composition 2	0	0	30.0
Decamethylcyclopentasiloxane	40.0	30.0	50.0
Dimethylpolysiloxane (viscosity: 6 mm <sup>2</sup> /s)	20.0	0	0
Propylene glycol	0	10.0	0
Aluminum zirconium compound <sup>*2)</sup>	20.0	20.0	20.0

\*1) A hydrophobic paste composition prepared from dispersing a cross-linked polymer made from methylhydrogenpolysiloxane and methylvinylpolysiloxane in decamethylpentasiloxane (produced by SHIN-ETSU CHEMICAL Co., Ltd.).

10

\*2) REZAL 36GP Superultrafine (a product of Reheis Chemical Company).

Each of the thus obtained roll-on antiperspirant samples spread smoothly, gave a refreshing feeling, had neither tacky nor oily feel, and caused no change by temperature and time, therefore, had excellent usability and stability.

15

**【0024】**

EXAMPLES 4 TO 6

- 20   Transparent Antiperspirant Gel Compositions:

Transparent antiperspirant gel samples having the compositions shown in Table 2 were prepared.

【Table 2】

	Example 4	Example 5	Example 6
Silicone Composition 1	8.0%	5.0	0
Silicone Composition 2	0	0	10.0
Decamethylcyclopentasiloxane	12.0	10.0	20.0
Dipropylene glycol	16.0	0	16.0
Propylene glycol	0	15.0	0
Aluminum zirconium compound <sup>*3)</sup>	20.0	20.0	20.0
Ion-exchange water	44.0	60.0	34.0

\*3) REZAL 36GP (a product of Reheis Chemical Company)

Each of the thus obtained transparent antiperspirant gel samples spread smoothly, gave a refreshing feeling, had neither tacky nor oily feel, and caused no change by temperature and time, therefore had excellent usability and stability.

【0025】

#### EXAMPLES 7 TO 9

Antiperspirant Compositions of Water-in-Oil Emulsion type:

Water-in-oil emulsion type of antiperspirant samples having the compositions shown in Table 3 were prepared.

【Table 3】

	Example 7	Example 8	Example 9
Silicone Composition 1	20.0%	4.0	0
Silicone Composition 2	0	0	10.0
Decamethylcyclopentasiloxane	7.0	8.0	20.0
Dimethylpolysiloxane (viscosity: 6 mm <sup>2</sup> /s)	0	2.0	0
Glycerin trioctanate	10.0	0	0
1,3-butylene glycol	5.0	5.0	0
Glycerin	0	0	5.0
Sodium citrate	0.3	0.3	0.3
Aluminium zirconium compound <sup>*4)</sup>	20.0	20.0	20.0
Ion-exchange water	50.7	60.7	44.7

\*4) REACH (a product of Reheis Chemical Company)

Each of the thus obtained antiperspirant samples of water-in-oil emulsion type spread smoothly, gave a refreshing



feeling, had neither tacky nor oily feel, and caused no change by temperature and time, therefore, had excellent usability and stability.

【0026】

5 EXAMPLES 10 TO 12

Skin-care Compositions containing Vitamin C:

Vitamin C-containing skin-care compositions constituted of the ingredients shown in Table 4 were prepared.

【Table 4】

	Example 10	Example 11	Example 12
Silicone Composition 1	20.0%	0	30.0
Silicone Composition 2	0	30.0	0
Decamethylcyclopenta-siloxane	40.0	30.0	47.0
Dimethylpolysiloxane (viscosity: 6 mm <sup>2</sup> /s)	0	5.0	0
Dipropylene glycol	38.0	0	20.0
1,3-butylene glycol	0	32.0	0
Cetyl alcohol	0	1.0	0
Vitamin C	2.0	1.0	2.0
Vitamin E	0	1.0	1.0

10

Each of the thus prepared vitamin C-containing skin-care compositions spread smoothly, gave a refreshing feeling, had neither tacky nor oily feel, and caused no change by temperature and time, therefore, had excellent usability and stability .

15

【Title of Document】 Abstract

【Abstract】

【Problem】

5 In either nonaqueous or aqueous case, to provide a dermatic  
cosmetic material such as antiperspirant gel compositions which  
have no tacky feel arising from a thickener and nonaqueous  
homogeneous paste vitamin C-containing skin-care compositions.

【Means to solve the problem】

10 A dermatic cosmetic material containing a silicone paste  
composition comprised of a cross-linked silicone polymer having  
hydrophilic polyoxyalkylene groups and a silicone oil as a  
substrate.

【Selected Drawing】 None

ABSTRACT OF THE DISCLOSURE

A dermatic cosmetic material containing as a substrate a silicone composition paste comprising (i) a cross-linked silicone polymer having hydrophilic polyoxyalkylene groups wherein  
5 polyoxyethylene moieties are comprised, which functions as a thickener component, and (ii) a silicone oil, thereby enabling stable incorporation of an antiperspirant or water-soluble vitamins and further ensuring improvements in usability.